

We claim:

1. A semiconductor component, comprising:

at least one microstructure;

at least one Peltier element for cooling said microstructure;

at least one thermogenerator element; and

a coupling device thermally coupling said Peltier element and said thermogenerator element to one another, said coupling device supporting said microstructure.

2. The semiconductor component according to claim 1, wherein said coupling device has a highly doped semiconductor layer.

3. The semiconductor component according to claim 1, wherein at least one of said Peltier element and said thermogenerator element are constructed as a thermoelectric transducer in a sandwich configuration.

4. The semiconductor component according to claim 3,

further comprising a plurality of first electrical interconnects and a plurality of second electrical interconnects;

further comprising a first substrate wafer;

further comprising a second electrically insulating substrate wafer; and

wherein said thermoelectric transducer has a plurality of series-connected thermoelement cells connected to one another in series by said first electrical interconnects, each of said thermoelement cells having a first body made of a first thermoelectric material of a first conductivity type and a second body made of a second thermoelectric material of a second conductivity type and connected to one another by one of said second electrical interconnects, said thermoelement cells disposed in a sandwich-like manner between said first substrate wafer and said second electrically insulating substrate wafer.

5. The semiconductor component according to claim 1, wherein said microstructure includes at least one laser component coupled to said coupling device.

6. The semiconductor component according to claim 5, further comprising a least one component selected from the group consisting of an integrated circuit and a thermistor for

controlling said laser component being a laser diode supported by said coupling device.

7. The semiconductor component according to claim 6, wherein at least one of said laser diode, said integrated circuit and said thermistor are coupled to the coupling device in a hybrid design.

8. The semiconductor component according to claim 1, wherein said microstructure has a laser diode, and at least one of said laser diode, said integrated circuit, and said thermistor are coupled to said coupling device in a monolithic integrated design.

9. The semiconductor component according to claim 1, wherein said thermogenerator element is part of a voltage supply for an integrated circuit.

10. The semiconductor component according to claim 1, wherein said microstructure is selected from the group consisting of an active electronic component, a passive electronic component, a microreactor, and a cavity for receiving a liquid in a context of a DNA analysis or DNA synthesis.

11. The semiconductor component according to claim 1, wherein said microstructure whose temperature is to be regulated has a

receptacle device for cultivation of cells being one of yeast cells, human cells and bacteria cells.

12. The semiconductor component according to claim 1, wherein said microstructure whose temperature is to be regulated is a gas chromatograph capillary disposed in said coupling device.

13. The semiconductor component according to claim 1, further comprising a smoothing device for smoothing a current generated by said thermogenerator element.

14. The semiconductor component according to claim 13, further comprising an integrated circuit and said smoothing device is disposed in said integrated circuit.

15. The semiconductor component according to claim 1, wherein said thermogenerator element is a measurement sensor for temperature regulation.

16. The semiconductor component according to claim 3,

further comprising a plurality of first electrical interconnects and a plurality of second electrical interconnects;

a first substrate wafer;

a second substrate wafer having an insulating layer;

wherein said thermoelectric transducer has a plurality of series-connected thermoelement cells connected to one another in series by said first electrical interconnects, each of said thermoelement cells having a first body made of a first thermoelectric material of a first conductivity type and a second body made of a second thermoelectric material of a second conductivity type and connected to one another by one of said second electrical interconnects; and

wherein said first substrate wafer and said second substrate wafer connected to one another such that said first and second electrical interconnects and said first and second bodies are disposed between said first and second substrate wafers and form said plurality of series-connected thermoelement cells.

17. The semiconductor component according to claim 5, wherein said laser component is selected from the group consisting of a laser diode and a laser-based gas sensor.

18. The semiconductor component according to claim 2, wherein said highly doped semiconductor layer is a highly doped silicon semiconductor layer.

19. The semiconductor component according to claim 5, wherein said microstructure is an optoelectronic component.